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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,113	11/28/2001	Mark Sheplak	21011.0041U2	3632

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AKERMAN SENTERFITT
P.O. BOX 3188
WEST PALM BEACH, FL 33402-3188

EXAMINER

GRIER, LAURA A

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/997,113	Applicant(s) SHEPLAK ET AL.	
	Examiner Laura A. Grier	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 48-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 48-54 and 58-60 is/are rejected.
- 7) ☒ Claim(s) 55-56, 61-70 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/4/02</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species III (claims 48-70) in reply filed on 9/26/05 is acknowledged. The traversal is on the ground(s) that the distinct species cited in the Election Restriction Requirement are related species among themselves. This is not found persuasive because the species cited in the Election Restriction Requirement based upon the disclosure and drawings of the invention, three different species are clearly disclosed and as well being claimed for microphone structure.

The requirement is still deemed proper and is therefore made FINAL. The applicant indicated claims 1-47 as being cancelled.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 48, 50-54, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dozier, II et al., U. S. Patent No. 6669489 in view of Tai et al., Pub. No., US20010033670.

Regarding claim 48, Dozier, II et al. (herein, Dozier) discloses printed circuit board (PCB), wherein a 1st and 2nd surface are characteristics of a PCB, which reads on a printed circuit board; a plurality of sockets, wherein further the sockets enable electronic components, such as

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semiconductor packages or the like, to be mounted to the circuit board (abstract, col. 1, lines 28-32, col. 8, lines 21-37, col. 22, lines 18-38), which reads on a plurality of sockets. However, Dozier fails to disclose a plurality of microphone packages, wherein each package is received in the socket and is responsive to an acoustic wave.

Regarding the microphone package(s), Tai et al. (herein, Tai) discloses a thin film electret microphone. Tai's disclosure comprises a microphone package developed on a etched substrate (constitutes as a PCB), wherein the microphone may be designed with a multiple microphones on a substrate wafer in a unitary microphone unit (paragraphs 0008, 0010, and 0065-0066), which indicates a plurality of microphone packages.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Dozier by providing a plurality of microphone packages for the purpose of improving the design, including and performance quality of a miniature microphone as taught by Tai.

Regarding claim 57, Dozier and Tai discloses everything claimed as applied above (see claim 48). Dozier and Tai (Tai) discloses that the microphone package coupled to an amplifier (paragraph 0065). Even though, Dozier and Tai (Tai) fail to disclose a specific distance (smaller than .5 mm) between the microphone and the amplifier, Tai discloses that other dimension of sizes, fabrication parameters, etc. (0067) may be used. Thus, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Dozier and Tai by implementing a specific distance (smaller than .5 mm) between the microphone and an amplifier for the purpose of optimizing the position of the components as claimed for specific designed purpose and performance.

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Regarding claim 50-54, Dozier and Tai disclose the PCB as a conventional type circuit board, which provides obviousness for the structural characteristics (support layers, garolite stiffening layer, and the PCB being a double-sided copper clad) of the printed circuit board, wherein these are of common PCB make-up structure.

4. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dozier and Tai in view of Humphreys, Jr. et al.

Regarding claim 49, Dozier and Tai discloses everything claimed as applied above (see claim 48). However, Dozier and Tai fail to disclose a laser diode positioned on the 1st surface of the PCB. The use of laser diodes with microphones was well known in the art. In a similar field of endeavor, Humphreys, Jr. et al. (herein, Humphreys) disclose a design and use of microphone directional arrays for aeroacoustic measurements. Humphreys' microphone array includes laser diodes mounted thereto (page 5, 2nd paragraph). It would have obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Dozier and Tai by providing a laser diode on the PCB for the alignment purposes as taught by Humphreys.

5. Claim 58-60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dozier and Tai above, and further in view of Criglar et al., U. S. Patent No. 4119007.

Regarding claim 58, Dozier and Tai discloses everything claimed as applied above (see claim 48). Dozier and Tai fail to disclose the microphone as a piezoresistive microphone.

Regarding the piezoresistive microphone, Criglar et al. (herein, Criglar) discloses a microphone created with piezoresistors on a semiconductor chip (col. 1, lines 62-67), which reads on piezoresistive microphone.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Dozier and Tai by providing the microphone as piezoresistive microphone for the purpose of enhancing the microphone with the well known piezoresistive effects as taught by Criglar (col. 4, lines 3-13).

Regarding claim 59, Dozier and Tai disclose everything claimed as applied above (see claim 57). Dozier and Tai disclose a semiconductor substrate and amplifier may be position on the substrate. However, Dozier and Tail fail to disclose a microphone, therein as claimed.

Regarding the microphone, Criglar discloses a microphone positioned on a semiconductor chip (substrate) coupled to an amplifier including a 1st capacitor and 1st resistor, and 2nd capacitor and 2nd resistor, therein as claimed and functioning as claimed (figures 9-10 and col. 3, lines 31-54 and col. 3, lines 64-68 and col.4, lines 1-13).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Dozier and Tai by providing such a microphone for the purpose achieving the performance taught by Criglar.

Regarding claim 60, Dozier, Tai and Criglar (herein, Dozier combination) disclose everything claimed as applied above (see claim 59). Dozier combination discloses the microphone comprising Wheatstone bridge configuration, which reads on the microphone with four piezoresistors forming a Wheatstone bridge (figures 9-10).

6. Claims 55-56, and 61-70 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

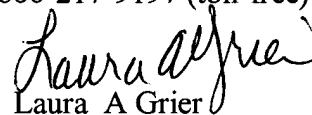
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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A. Grier whose telephone number is (571) 272-7518. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Laura A Grier
Primary Examiner
Art Unit 2644
November 12, 2005